

FINAL REPORT

Eastern Shore Shellfish TMDL Implementation Plan – Phase I

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

This Implementation Plan (IP) is a companion document to the report, “Total Maximum Daily Load (TMDL) Report for Shellfish Areas Listed Due to Bacteria Contamination – Occohannock Creek,” (DEQ 2006). The TMDL Study set allocations to limit bacteria pollutant loads discharged to the Occohannock Creek watershed to levels that were modeled to achieve compliance with the state water quality criteria for bacteria for shellfish waters. This IP bridges the gap between those specified pollutant load allocations and actual reductions in bacteria counts by recommending a set of actions to be taken in the watershed during a fifteen year project timeframe.

State and Federal Requirements

Two sets of regulatory requirements for the development of TMDL IPs are applicable in the state of Virginia.

- Virginia Water Quality Monitoring, Information and Restoration Act of 1997 (WQ MIRA)
- §303(d) of the Federal Water Pollution Control Act of 1972 commonly known as the Clean Water Act (CWA)

WQMIRA requires the State to develop reports assessing water quality of state waters, to provide data to develop programs addressing water quality impairments, to develop TMDLs and to develop IPs. CWA strives “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The inception of the federal TMDL program is found in section 303(d) of that legislation.

1.2 Review of the TMDL

As a result of monthly monitoring conducted by the Virginia Department of Health’s Division of Shellfish Sanitation (DSS), the Virginia Department of Environmental Quality (DEQ) listed sections of Occohannock Creek as impaired on Virginia’s Section 303(d) list for being unable to attain the criteria for the production of edible and marketable natural resources due to elevated levels of fecal coliform bacteria. The criteria are in place to protect the public from health effects associated with the consumption of bacteriologically contaminated shellfish.

A TMDL study completed by DEQ in January 2006, examined the watershed characteristics and the sources of fecal coliform to the bays. Using monthly monitoring data, bacterial source tracking (BST), and a tidal volumetric model, DEQ assigned maximum allowable loads to each source in the watersheds in order to bring Occohannock Creek into compliance with the water quality standard for shellfish propagation.

Table 1-1: TMDL Reduction in Fecal Coliform Loadings from Existing Conditions

| Growing Area | Wildlife | Human | Pets | Livestock | Total |
|-------------------|----------|-------|------|-----------|-------|
| Occohannock Creek | 67% | 100% | 100% | 100% | 86.6% |

The core of this IP is a set of actions found in Section xx aimed to reduce the levels of fecal coliform bacteria. The actions chiefly target bacteria from human and pet (“anthropogenic”) sources. This reflects the staged implementation recommended by the Virginia Department of Environmental Quality and referenced in the TMDL Study.

1.3 Public Participation

Two (*one so far*) public meetings were held in the watershed to engage the public in the development of the TMDL Implementation. A steering committee composed of representatives from Accomack County, Northampton County, the Accomack-Northampton Planning District Commission (A-NPDC), state agencies, and local environmental groups was formed to guide development of the TMDL IP.

1.4 Implementation Actions

The management actions outlined in this IP capitalize on existing and planned programs and efforts within the watershed and will be implemented in three phases. Phase I actions are those that have already been initiated or are scheduled for completion within five years. Phase II activities are those that are planned for implementation within the next five years but may not have approved funding sources yet. Phase III actions may require regulatory changes, but they may be implemented as necessary if Phase I and Phase II actions do not significantly improve water quality within the study area. All management actions were divided into the following management categories:

- Agricultural BMPs
- Sanitary Sewer System Improvements
- Stormwater Programs
- Boating Programs
- Pet Waste Programs
- Erosion and Sediment Control
- Aquatic Resources Restoration
- Education Programs
- Land Use Management
- Wildlife Contribution Controls

1.5 Associated Costs and Benefits

The primary benefit of the implementation of the management actions described in this IP is the reduction of bacteria levels in the Occohannock Creek. The programs and actions contained within this IP will serve to reduce the anthropogenic sources of bacteria. MapTech Inc estimated costs for management categories using knowledge of current program costs and best professional judgment.

1.6 Measurable Goals and Milestones

The goal of the TMDL Report is to bring the impaired water segments within the Occohannock watershed into compliance with the water quality standard for bacteria in shellfish waters. Once the water segment achieves compliance with the bacteria criteria, then the segment can be removed from the 303(d) Impaired Waters List. Throughout the fifteen-year project timeframe, DSS will continue its monthly monitoring of stations. Currently, this monitoring program includes xx monitoring stations. Project progress will be tracked throughout the timeframe of the implementation plan, and the effectiveness of the management actions proposed in this IP will be evaluated at the end of five, ten, and fifteen years.

1.7 Stakeholders Roles and Responsibilities

Stakeholders are individuals who live or have land management responsibilities in the watershed, including government agencies, businesses, private individuals and special interest groups. Stakeholder participation and support is essential for achieving the goals of this TMDL effort. Stakeholders for this project were identified at the beginning of IP development and invited to sit on the Steering Committee for the project.

1.8 Watershed Planning Efforts

1.9 Potential Funding Sources

One of the objectives of this TMDL Implementation Plan is to maximize utilization of existing programs and resources to achieve the goal of reducing bacteria levels. In general, funding for these programs and the management actions described in this IP will come from four sources:

- Locality funds
- Private / nonprofit funds
- Virginia State funds
- Federal funds

2.0 INTRODUCTION

2.1 Purpose, Scope, and Timeframe

This Implementation Plan (IP) is a companion document to the report, “Total Maximum Daily Load (TMDL) Report for Shellfish Areas Listed Due to Bacteria Contamination – Occohannock Creek,” completed by the Virginia Department of Environmental Quality (DEQ) in January 2006, which will henceforth be referred to as the TMDL Study. The IP creates a framework to achieve the reductions in bacteria counts recommended in the TMDL Study. The core of this IP is the set of actions presented in Section 7 intended to reduce the levels of fecal coliform. The goal of the IP is compliance with the Commonwealth of Virginia water quality standard for bacteria for shellfish waters. This IP follows the State guidance for TMDL implementation plans published by DEQ. This TMDL and Implementation Plan are the first of many to be completed within the jurisdiction of Accomack and Northampton Counties. It is the intention that this document will serve as a framework for TMDL Implementation Plans that will be completed in the future.

The TMDL study that was approved by the US Environmental Protection Agency (USEPA) in June 2006 examined the watersheds, their characteristics, and the sources of fecal coliform. Using monthly monitoring data, bacterial source tracking (BST), and a tidal volumetric model, DEQ was able to assign maximum allowable loads to each source in the watersheds in order to bring Occohannock Creek into compliance with the water quality standard. This IP outlines a strategy and the proposed actions to reduce anthropogenic loading of bacteria to the level set forth in the TMDL study in order to comply with the water quality standard for fecal coliform for shellfish waters. The proposed actions included in this IP will be performed by xxxxxxxxxxxx in cooperation with state, federal, and non-governmental entities. These actions are expected to be completed within a ten to fifteen year timeframe.

The pollutant reductions will be implemented in a staged fashion. Staged implementation is an iterative process that first addresses those sources with the largest impact on water quality. During the implementation of the stage 1 scenario, all controllable sources will be reduced to the maximum extent practicable using an iterative approach. DEQ will re-assess water quality data collected by the Virginia Department of Health, Division of Shellfish Sanitation (VDH-DSS) during and subsequent to the implementation of the stage 1 scenario to determine if the water quality standard is attained.

Stage 1 implementation management actions will be divided into three phases. Phase I actions are those that have already been initiated or are scheduled for completion within five years. Phase II activities are those that are planned for implementation within the next five years but may not have approved funding sources yet. Phase III actions may require regulatory changes, but they may be implemented as necessary if Phase I and Phase II actions do not significantly improve water quality within the study area. Stage 1 implementation actions are discussed in greater detail in Section 7.

The TMDL may be reevaluated by DEQ after implementation of stage 1 management actions or if new information on water quality or hydrodynamics becomes available. Only DEQ can revise a TMDL.

In some water bodies for which TMDLs have been developed, water quality modeling indicates that even after removal of all bacteria sources (other than wildlife), the water body will not attain standards under all flow regimes at all times. As is the case for the Occohannock Creek, these water bodies may not be able to attain standards without some reduction in wildlife load. Virginia and EPA are not proposing the elimination of wildlife to allow for the attainment of water quality standards. While managing over populations of wildlife remains as a limited option to local stakeholders, the reduction of wildlife or changing of a natural background condition is not the intended goal of a TMDL. If water quality standards are not being met after implementation of stage 1 management actions, then it may be determined through a Use Attainability Analysis (UAA) that shellfish propagation is not a viable use for the Creek. The UAA process is discussed in greater detail in Section 7.2.

2.2 Regulatory Background

Section 303(d) of the Clean Water Act and EPA's Water Quality Planning and Management Regulations (40 CFR Part 130) require states to develop Total Maximum Daily Loads (TMDLs) for water bodies which are exceeding water quality standards. TMDLs represent the total pollutant loading that a water body can receive without violating water quality standards. Water quality standards are numeric or narrative limits on pollutants that are developed to ensure the protection of human health and aquatic life. The TMDL process establishes the allowable loading of pollutants for a water body based on the relationship between pollution sources and in-stream water quality conditions. By following the TMDL process, states can establish water quality based controls to reduce pollution from both point and non-point sources to restore and maintain the quality of their water resources (EPA 1991).

In accordance with Federal regulations at 40 CFR § 130.7, a TMDL must comply with the following requirements: (1) designed to attain and maintain the applicable water quality standards, (2) include a total allowable loading and as appropriate, wasteload allocations (WLAs) for point sources and load allocations for nonpoint sources, (3) consider the impacts of background pollutant contributions, (4) take critical stream conditions into account (the conditions when water quality is most likely to be violated), (5) consider seasonal variations, (6) include a margin of safety (which accounts for uncertainties in the relationship between pollutant loads and instream water quality), (7) consider reasonable assurance that the TMDL can be met, (8) be subject to public participation.

Once a TMDL is developed and approved by EPA, measures must be taken to reduce pollution levels in the stream. These measures, which can include the use of better treatment technology and the installation of best management practices (BMPs), are implemented in a staged process that is described along with specific BMPs in the IP. In general, the Commonwealth intends for the pollutant reductions to be implemented in a

staged fashion. Staged implementation is an iterative process that first addresses those sources with the largest impact on water quality.

2.3 Designated Use and Water Quality Standard

According to Virginia Water Quality Standards (9 VAC 25-260-5), the term “water quality standards means provisions of state or federal law which consist of a designated use or uses for the waters of the Commonwealth and water quality criteria for such waters based upon such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of the State Water Control Law (§62.1-44.2 et seq. of the Code of Virginia) and the federal Clean Water Act (33 USC §1251 et seq.).”

According to Virginia Water Quality Standards (9 VAC 25-260-10A), “all state waters are designated for the following uses: recreational uses (e.g., swimming and boating); the propagation and growth of a balanced indigenous population of aquatic life, including game fish, which might be reasonably expected to inhabit them; wildlife; and the production of edible and marketable natural resources (e.g., fish and shellfish).”

For a shellfish supporting water body to be in compliance with Virginia's bacteria standards for the production of edible and marketable natural resources use, DEQ specifies the following criteria (9VAC 25-260-160): “In all open ocean or estuarine waters capable of propagating shellfish or in specific areas where public or leased private shellfish beds are present, and including those waters on which condemnation or restriction classifications are established by the State Department of Health the following criteria for fecal coliform bacteria shall apply; The geometric mean fecal coliform value for a sampling station shall not exceed an MPN (most probable number) of 14 per 100 milliliters. The 90th percentile shall not exceed an MPN of 43 for a 5 tube, 3 dilution test or 49 for a 3 tube, 3 dilution test”

The impairment for Occohannock Creek is based on restrictions placed upon the harvesting of shellfish from these waters. The restrictions, which are issued by the Virginia Department of Health’s Division of Shellfish Sanitation (DSS), are based on monthly monitoring data. DSS collects monthly fecal coliform bacteria samples from each of its sampling stations. DSS calculates geometric mean and 90th percentile concentration values based on the most recent 30-months of sampling data.

2.4 TMDL Efforts

Four segments (*does the seasonal marina count here that makes 4*) have been restricted pursuant to Title 28.2 Chapter 8, sections 228.2-803, 228.2-808, 32.1-20 and 9-6.14:4.1 B16 of the Code of Virginia by the Virginia Department of Health, Division of Shellfish Sanitation (VDH-DSS). Notice and Description of Shellfish Condemnation Area 084-043, Occohannock Creek describes and delineates harvest areas that are restricted because water quality monitoring data show excessive levels of bacteria in these waters.

The waters also were classified as impaired on the state's 303(d) list of impaired waters and require a TMDL.

In response to Section 303(d) of the CWA, the Virginia Department of Environmental Quality (DEQ) listed Occohannock Creek as impaired on Virginia's Section 303(d) list for being unable to attain the criteria for the production of edible and marketable natural resources due to elevated levels of fecal coliform bacteria. The criteria are in place to protect the public from health affects associated with the consumption of bacteriologically contaminated shellfish.

A TMDL study for the Occohannock Creek was completed by DEQ in January 2006 and approved by the US Environmental Protection Agency (USEPA) in June 2006. The TMDL study examined the watersheds, their characteristics, and the sources of fecal coliform throughout the watersheds. Using monthly monitoring data, bacterial source tracking (BST), and a tidal volumetric model, DEQ assigned maximum allowable loads to each source in the watersheds in order to bring the Creek into compliance with the water quality standard for shellfish propagation.

2.5 Occohannock Watershed

The Occohannock Watershed is located within Accomack and Northampton Counties on the Eastern Shore of Virginia. The watershed drains into the Chesapeake Bay and is subject to the ebb and flow of the tides. The drainage area of the watershed is approximately xx acres (xx sq miles). The nearest climate station is located at the Virginia Tech Agricultural Experimental Research Station located within the study area. The average annual rainfall is xx.xx inches. A detailed map of the watershed is shown in Figure xx.

3.0 STATE AND FEDERAL REQUIREMENTS

3.1 Background

There are two sets of regulatory requirements for the development of TMDL Implementation Plans (IPs) in the Commonwealth of Virginia.

- Virginia Water Quality Monitoring, Information and Restoration Act of 1997 (WQMIRA)
- §303(d) of the Federal Water Pollution Control Act of 1972 commonly known as the Clean Water Act (CWA)

3.2 State Requirements

The TMDL Implementation Plan is a requirement of Virginia's 1997 Water Quality Monitoring, Information, and Restoration Act (§62.1-44.19:4 through 19:8 of the Code of Virginia), or WQMIRA. WQMIRA directs the Virginia Department of Environmental Quality (DEQ) to "develop and implement a plan to achieve fully supporting status for

impaired waters.” In order for Implementation Plans to be approved by the Commonwealth, they must include the following:

- Date of expected achievement of water quality objectives;
- Measurable goals;
- Necessary corrective actions;
- Associated costs, benefits, and environmental impact of addressing the impairment.

3.3 Federal Requirements

Section 303(d) of the CWA and current EPA regulations do not require the development of implementation strategies. EPA does, however, outline the minimum elements of an approvable IP in its 1999 “Guidance for Water Quality-Based Decisions: The TMDL Process”. The listed elements include:

- A description of the implementation actions and management measures,
- A time line for implementing these measures,
- Legal or regulatory controls,
- The time required to attain water quality standards, and
- A monitoring plan and milestones for attaining water quality standards.

3.4 Federal Consent Decree

The Commonwealth of Virginia was a signatory to the June 11, 1999 consent decree settling federal case no. 98-979-A “American Canoe Association, Inc. and the American Littoral Society v. USEPA and USEPA – Region III.” By signing the consent decree, Virginia committed to develop TMDL studies by 2010 for all Virginia water segments listed on the 1998 303(d) Impaired Waters list.

4.0 REVIEW OF TMDL DEVELOPMENT

4.1 Description of Watershed Characteristics

The xx square mile drainage area of the watershed is located within Accomack and Northampton Counties in eastern Virginia. The watershed drains into the Chesapeake Bay and is subject to the ebb and flow of the tides.

Occohannock Creek is hydraulically connected to the Chesapeake Bay. Due to this hydraulic connection, the management actions in this implementation plan should positively affect the water quality in the Bay. The area can be characterized as rural with more dense populations located along the creek. Undeveloped land comprises xx% of the

total watershed as forest, wetland, urban grassland, or water. Land use area by category is shown in Table 4-1 and Figure 4-1.

Table 4-1: Land Use

| Land Use Category | Area (acres) | Area (%) |
|--------------------|--------------|----------|
| Residential | | |
| Commercial | | |
| Streets | | |
| Public/Semi-public | | |
| Agriculture | | |
| Marsh/wetland | | |
| Undeveloped | | |

4.2 Description of Impairment

4.3 Description of Water Quality Monitoring

The VDH-DSS collects monthly monitoring data for fecal coliform bacteria.

4.4 Description of Water Quality Modeling

4.5 Description of Sources Considered

Nonpoint sources of bacteria were considered in Study. Nonpoint source pollutants originate from multiple sources over a relatively large area, and can be divided into source activities related to either land or water use including failing septic tanks, improper animal-keeping practices, forest practices, and urban and rural runoff. In addition to the bacterial source tracking discussed in the previous sections, the DSS Shoreline Survey were used to determine point sources and principal non-point sources such as failing septic systems and farm based non-point source operations.

4.5.1 Non-Point Source Contributions

Non-point source contributions to the bacterial levels result from both anthropogenic and natural sources. Potential human activities, which may contribute to the bacterial pollution, include failing septic systems and their associated drain fields, improper pet waste disposal practices, and sheet flow runoff from lawns and cropland. Natural sources include the abundance of migratory and resident species of birds along with the natural wildlife populations, which occupy the watershed area.

The latest Department of Shellfish Sanitation (DSS) shoreline sanitary survey for this area was completed in May 2007 and identified 32 on site deficiencies related to septic systems. There are 9 additional septic systems noted in the potential pollution sections. The shoreline survey also noted the existence of several pipes of unknown origin without discharge that may also be sources of pollution.

6.0 PUBLIC PARTICIPATION

An essential step in implementing a TMDL is the input from a broad range of individuals, agencies, organizations and businesses because of their interest and familiarity with local water quality needs and conditions. Public participation facilitates dialogue between local stakeholders and government agencies to commit resources to TMDL implementation, such as funding and technical support. Community members are best suited to identify and resolve sources of water quality problems. In order to engage the public in the

development of the TMDL Implementation Plan, one public meeting was held in July 2007. Accomack and Northampton Counties, other state and local agencies, members of the public and community groups all took part in the public meeting. Representatives of these groups were selected to be on the plan Steering Committee. The Steering Committee met on August 9, 2007 and September 13, 2007. Members of the Steering Committee included:

- Accomack County – Departments of Planning, Public Works
- Northampton County – Department of Planning
- Accomack-Northampton Planning District Commission
- Virginia Department of Environmental Quality – Water Division
- Virginia Department of Conservation and Recreation
- Virginia Department of Health – Local, Shellfish Sanitation
- Virginia Department of Transportation
- Virginia Institute of Marine Science
- Accomack County Extension
- Northampton County Extension
- Virginia Department of Agriculture and Consumer Services
- Eastern Shore Shorekeeper
- Virginia Tech Agriculture Experiment Station
- Eastern Shore Soil and Water Conservation District

7.0 IMPLEMENTATION OPTIONS

Implementation of this TMDL will contribute to the on going water quality improvement efforts aimed at restoring water quality in the Chesapeake Bay. In general, reduction strategies will be implemented in a staged process that first addresses sources with the largest impact on water quality. Implementation will focus on reducing bacterial contamination due to wildlife, humans, and pets.

7.1 Linking the TMDL to Implementation

7.2 Identifying Implementation Actions

The implementation actions discussed below were developed to reduce sources of bacteria loading to Occohannock Creek. These actions will be implemented in three phases. Phase I actions are those that have already been initiated or are scheduled for completion within five years. Phase II activities are those that are planned for implementation within the next five years but may not have approved funding sources yet. Phase III actions may require regulatory changes, but they may be implemented as

necessary if Phase I and Phase II actions do not significantly improve water quality within the study area.

In order to remove a designated use or establish subcategories of a use, the state must demonstrate 1) that the use is not an existing use, 2) that downstream uses are protected, and 3) that the source of bacterial contamination is natural and uncontrollable by effluent limitations and by implementing cost-effective and reasonable best management practices for non-point source control (9 VAC 25-260-10). This and other information is collected through a special study called a Use Attainability Analysis (UAA). All site-specific criteria or designated use changes must be adopted as amendments to the water quality standards regulations. Watershed stakeholders and EPA will be able to provide comment during this process. Extensive follow-up monitoring will evaluate if the modeling assumptions were correct. If water quality standards are not being met, a UAA may be initiated to reflect the presence of naturally high bacteria levels due to uncontrollable sources.

Table 7-1 Management Options for Implementation

| Management Category | Management Option | Development Phase |
|----------------------------|---|--------------------------|
| Agricultural BMPs | | |
| | | |
| | | |
| | | |
| | | |
| Sewage Improvements | Enforcement of CBPA Septic Tank Pump Out and Inspection Regulatory Requirements | |
| | | |
| | | |
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| | | |
| Stormwater Programs | | |
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| | | |
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| | | |
|------------------------------|--|--|
| Boating Programs | | |
| Pet Waste Programs | | |
| | | |
| Erosion and Sediment Control | | |
| Aquatic Resource Restoration | | |
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| Education Programs | | |
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7.2.1 Agricultural BMPs

7.2.2 Sewage Improvements

7.2.3 Stormwater Programs

7.2.4 Boating Programs

7.2.5 Pet Waste Programs

7.2.6 Erosion and Sedimentation BMPs

Erosion and sedimentation control measures may indirectly reduce the bacteria loading to waterbodies. Bacteria can cling to small sediments, so erosion prevention measures should also serve to reduce bacteria loading.

The Virginia Department of Conservation and Recreation (DCR) implements the state Erosion and Sediment Control (ESC) Program according to the Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations (VESCL&R). The law is codified at Title 10.1, Chapter 5, Article 4 of the Code of Virginia, regulations are found at Section 4VAC30-50, and certification regulations are found at Section 4VAC50-50 of the Virginia Administrative Code. The ESC Program's goal is to control soil erosion, sedimentation, and nonagricultural runoff from regulated "land-disturbing activities" to prevent degradation of property and natural resources. The regulations specify "Minimum Standards," which include criteria, techniques and policies that must be followed on all regulated activities. These statutes delineate the rights and responsibilities of governments that administer an ESC program and those of property owners who must comply.

DCR has created the Virginia Erosion and Sediment Control Handbook in order to establish minimum design and implementation standards to control erosion and sedimentation from land-disturbing activities in Virginia.

7.2.7 Aquatic Resource Restoration

7.2.8 Education Programs

Public education and outreach are important tools for reducing bacterial pollution due to pet waste, stormwater runoff, recreational boating, agricultural practices, and sewage overflows.

7.2.9 Land Use Management

7.2.10 Wildlife Contribution Controls

It is a major focus of this implementation plan to reduce wildlife sources of bacteria.

7.3 Implementation Costs and Benefits

Table 7-3: Estimated Costs of Management Options

| Management Category | Management Option | Estimated Initial Costs | Estimated Annual Maintenance Costs |
|----------------------------|--------------------------|--------------------------------|---|
|----------------------------|--------------------------|--------------------------------|---|

| | | | |
|---|--|--|--|
| | | | |
| Animal Waste Management Plan for Oceana ² | | | |
| Equine Facility Inventory for Virginia Beach | | | |
| Oceana BST Study ² | | | |
| Equine Facility Pasture Management for Virginia Beach | | | |
| Find and Fix Program | | | |
| Rehabilitation of Existing Sanitary Sewer Lines | | | |
| Little Neck Peninsula Sewer Project | | | |
| Dey Cove Source Tracking Study | | | |
| Follow up of Dey Cove Study Results | | | |
| Policy Change for Mandatory Sewer Connection | | | |
| Enforcement of CBPA Septic Tank Pump Out and Inspection Regulatory Requirements | | | |
| Water Quality Monitoring of Ponds with Aerators | | | |
| Pembroke Area BMP | | | |
| Investigate Street Sweeping Expansion | | | |
| Compliance with New MS4 permit | | | |

8.0 MEASURABLE GOALS AND MILESTONES

8.1 Establishing Goals

8.1.1 TMDL Goals

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8.1.2 Related Watershed Management Goals

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8.2 Establishing a Timeline and Milestones for Implementation

8.3 Developing Tracking and Monitoring Plans

9.0 STAKEHOLDERS ROLES AND RESPONSIBILITIES

The management actions described in this report will be implemented by federal, state, regional and local agencies and non-governmental organizations in a collaborative effort to achieve the primary goal of reducing fecal coliform. The following section describes the agencies involved in the development of this Implementation Plan.

9.1 Federal

9.1.1 United States Environmental Protection Agency

Section 303(d) of the Clean Water Act and EPA's Water Quality Planning and Management Regulations (40 CFR Part 130) require states to develop Total Maximum Daily Loads (TMDLs) for water bodies which are exceeding water quality standards. The EPA has the regulatory authority to approve TMDLs. Section 303(d) of the CWA and current EPA regulations do not require the development of implementation strategies. The EPA will review the TMDL Implementation Plan for completeness.

9.2 State

9.2.1 Department of Environmental Quality (DEQ)

The State Water Control Law authorizes the State Water Control Board to control and plan for the reduction of pollutants impacting the chemical and biological quality of the State's waters resulting in the degradation of the swimming, fishing, shell fishing, aquatic life, and drinking water uses. For many years the focus of DEQ's pollution reduction efforts was the treated effluent discharged into Virginia's waters via the VPDES permit process. The TMDL process has expanded the focus of DEQ's pollution reduction efforts from the effluent of wastewater treatment plants to the pollutants causing impairments of the streams, lakes, and estuaries. The reduction tools are being expanded beyond the permit process to include a variety of voluntary strategies and BMPs.

The DEQ is the lead agency in the TMDL process. The Code of Virginia directs DEQ to develop a list of impaired waters (303 (d) list), develop TMDLs for these waters, and develop Implementation Plans for the TMDLs. DEQ administers the TMDL process including the public participation component and formally submits the TMDLs to EPA and the State Water Control Board for review and approval.

Additionally, the §303(e) of the Clean Water Act and EPA's water quality management regulation 40 CFR 130.5 requires the States to develop Water Quality Management Plans (WQMP) for the major watersheds. The purpose of the WQMPs is to present the processes to be used in the watershed for attaining and maintaining water quality standards. Also, the WQMPs serve as the repository for all TMDLs and TMDL Implementation Plans developed within the watershed. DEQ, with the assistance of DCR,

the Department of Mines, Minerals and Energy (DMME), and VDH plans to update the State's 303(e) WQMPs concurrently with the TMDL development effort.

9.2.2 Department of Conservation and Recreation (DCR)

DCR is authorized to administer Virginia's nonpoint source pollution reduction programs in accordance with §10.1-104.1 of the Code of Virginia and §319 of the Clean Water Act. EPA is requiring that much of the §319 grant monies be used for the development of TMDLs.

Because of the magnitude of the nonpoint source component in the TMDL process, DCR is a major participant in the TMDL process. DEQ and DCR have signed a Memorandum of Understanding agreeing to a cooperative effort in the TMDL process including Implementation Plan development. Specifically, DCR agreed to assume responsibility for the nonpoint source component of all TMDLs including the final allocations, with the exception of mineral extraction. This includes those TMDLs contracted by DEQ. Also, DCR agreed to present the nonpoint source component of the TMDLs in the public forums. Another major role DCR has in the TMDL process is the awarding and managing of the contractual services for the development of TMDLs related to nonpoint sources.

9.2.3 Virginia Department of Health (VDH)

The VDH is responsible for classifying shellfish growing waters and monitoring the waters for fecal coliform bacteria. Also, the VDH conducts shoreline surveys to determine potential sources of contamination. This information is evaluated by the VDH to determine areas that are open or restricted for shellfish harvesting for direct marketing. DEQ places the restricted areas on the 303(d) List for TMDL development.

9.2.4 Soil and Water Conservation District

The Eastern Shore Soil and Water Conservation (SWCD) is one of 47 districts in Virginia. Districts are subdivisions of state government which coordinate local natural resource protection programs (section 10.1-50 of the code of VA, 1950, as amended). SWCD provides local leadership in conservation of soil, water, and related natural resources in the counties of Accomack and Northampton. Some programs available through the district include: cost-share assistance to agricultural producers who install conservation practices on their farms as well as a wide variety of educational programs that cater to school children and local organizations.

9.3 Regional

9.3.1 Accomack-Northampton Planning District Commission

Planning District Commissions are voluntary associations that were created in 1969 pursuant to the Virginia Area Development Act and a regionally executed Charter Agreement. The purpose of planning district commissions, as set out in the Code of Virginia, Section 15.2-4207 is "...to encourage and facilitate local government

cooperation and state-local cooperation in addressing on a regional basis problems of greater than local significance."

The Accomack-Northampton Planning District Commission (A-NPDC), one of 21 Planning District Commissions in the Commonwealth of Virginia, is a regional organization comprised of three local governments. The A-NPDC serves as a resource of technical expertise to its member local governments. It provides assistance on local and regional issues pertaining to Environmental Planning, and Transportation. As a Virginia Planning District, the A-NPDC is also the Affiliate Data Center for the region, providing economic, environmental, transportation, census, and other relevant information to businesses, organizations and citizens. The A-NPDC was contracted by the Virginia DCR to develop this implementation plan for the bacteria TMDL for shellfish waters of Occohannock Creek.

9.3.2 Accomack County

Accomack County hold land use control over a substantial section of Occohannock Creek watershed. In addition to zoning, building controls, and erosion and sediment controls, the County also operates a ditch drainage program.

9.3.3 Northampton County

Northampton County hold land use control over a substantial section of Occohannock Creek watershed. The watershed is regulated by the county through zoning, building controls, and erosion and sediment controls.

9.5 Private Sector, Non-governmental, and Citizen Groups

The Eastern Shore Shorekeeper has been involved in TMDL public participation efforts and has assisted in identifying locations where water quality samples should be taken. The organization is involved in monitoring conditions of the creek.

Table 9-1: Management Actions and Responsible Stakeholders

| Management Category | Management Option | Stakeholders Responsible |
|----------------------------|--------------------------|---------------------------------|
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10.0 RELATED WATERSHED PLANNING EFFORTS

10.1 Adjacent Impaired Waterbodies

Table 10-1: Waterbodies on the 303(d) List within or adjacent to the Watershed

| TMDL ID | Waterbody Name | Impairment | Initial List Date | TMDL Development Date | City/County | Size |
|----------------|-----------------------|-------------------|--------------------------|------------------------------|--------------------|-------------|
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11.0 POTENTIAL FUNDING SOURCES

State

Virginia Agricultural Best Management Practices
Cost-Share Program
Virginia Agricultural Best Management Practices
Tax Credit Program
Virginia Agricultural Best Management Practices
Loan Program
Virginia Forest Stewardship Program
Virginia Small Business Environmental Assistance Fund Loan Program
Virginia Resource Authority
Water Quality Improvement Fund
Clean Water Act Revolving Loan Program

Federal

EPA 319 Funds
USDA Conservation Reserve Program (CRP)
USDA Conservation Reserve Enhancement Program (CREP)
USDA Environmental Quality Incentives Program (EQIP)
USDA Forest Incentive Program (FIP)
USDA Watershed and River Basin Planning and Installation Public Law 83-566 (PL566)
USDA Wildlife Habitat Incentive Program (WHIP)
USDA Wetland Reserve Program (WRP)
US Fish and Wildlife Service Private Stewardship Program
US Fish and Wildlife Service Conservation Grants

Local or Regional

Landowner Contributions and Matching Funds

Private Foundations, Non-Profit Organizations, Businesses

11.1 Requirements for Section 319 Fund Eligibility

EPA develops guidelines that describe the process and criteria to be used to award CWA Section 319 nonpoint source grants to States. The most recent guidance, “Nonpoint Source Program and Grants Guidelines for States and Territories,” was effective as of October 23, 2003, and identifies the following nine elements that must be included in the IP to meet the 319 requirements:

1. Identify the causes and sources or groups of similar sources that will need to be controlled to achieve the load reductions estimated in the watershed-based plan;
2. Estimate the load reductions expected to achieve water quality standards;
3. Describe the NPS management measures that will need to be implemented to achieve the identified load reductions;
4. Estimate the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement the watershed-based plan.
5. Provide an information/education component that will be used to enhance public understanding of the project and encourage the public’s participation in selecting, designing, and implementing NPS management measures;
6. Provide a schedule for implementing the NPS management measures identified in the watershed based plan that is reasonably expeditious;
7. Describe interim, measurable milestones for determining whether NPS management measures or other control actions are being implemented;
8. Identify a set of criteria for determining if loading reductions are being achieved and progress is being made towards attaining water quality standards, and if not, the criteria for determining if the watershed-based plan needs to be revised; and
9. Establish a monitoring component to evaluate the effectiveness of the implementation efforts

REFERENCES

4.6 TMDL Load Reductions and Allocation Results

5.0 ADDITIONAL INFORMATION SINCE TMDL DEVELOPMENT

5.1 Land use Changes

5.2 Additional Shellfish Condemnation Areas

5.3 Additional Water Quality Monitoring Sites

5.4 Updated Shoreline Survey

5.5 Updated Water Quality Modeling